

1 4. The method of claim 1 wherein receiving the request for the dynamically
2 allocated channel between the second node and the third node includes receiving a
3 request to change an allocated capacity of a communication channel previously allocated
4 to communication between the second node and the third node.

1 5. The method of claim 1 wherein allocating the portion of the second part of the
2 frames to said communication channel includes modifying allocated capacities of
3 multiple communication channels.

1 6. The method of claim 1 wherein the fixed part includes a third part that is
2 allocate for fixed-rate channels between the nodes.

1 7. The method of claim 1 wherein the communication system includes a SONET
2 network and each frame includes a Synchronous Payload Envelope (SPE), and wherein
3 allocating the fixed part of each frame includes allocating a portion of the SPE of each
4 frame.

1 8. The method of claim 1 wherein the portion of the SPE is the entire SPE.

1 9. The method of claim 1 wherein the portion of the SPE includes a virtual
2 tributary group.

1 10. The method of claim 1 wherein provisioning the communication system
2 further includes allocating a portion of the SPE to conventional SONET virtual
3 tributaries, whereby a portion of the communication capacity of the SONET network is
4 used for conventional communication on statically allocated virtual paths.

20 first communication channel; and transmitting the first frame onto the network; and
21 at the third node, receiving the first frame from the network, and extracting
22 the data from the portion of the first frame that is allocated to the first communication
23 channel.

1 15. The method of claim 14 further comprising:
2 sending a request from the second node to the first node to change the
3 allocated capacity of the first communication channel; and
4 at the first node, receiving the request, determining an update to the allocation
5 of the second part of the frames for the communication channels, and broadcasting
6 control information to the other nodes encoding the update to the allocation.

1 16. A communication system comprising a plurality of nodes coupled by a
2 communication path, wherein one of the nodes is an arbiter node, and wherein each node
3 includes:
4 a framer for receiving a series of communication frames from the
5 communication path, and for transmitting the communication frames along the
6 communication path;
7 circuitry for identifying control information in each of the communication
8 frames;
9 circuitry for determining an allocated location and a size of a portion of each
10 communication frame that is allocated to a selected one of the traffic streams using the
11 identified control information; and
12 circuitry for inserting data for the selected traffic stream into the
13 communication frame at the determined location for the selected stream.

1 17. The communication system of claim 16 further comprising:
2 circuitry for inserting a request to change the allocated size for the traffic
3 stream in the communication frame prior to its transmission.
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